

MAEKAWA et al. -- Appln. No. 10/069,274
Attorney Docket: 040258-0290685

IN THE CLAIMS:

BEST AVAILABLE COPY

1. (Currently amended) A method of fabricating a semiconductor device, comprising:
forming a first insulation film on a substrate by a spin-on process;
~~applying a first curing process to~~ partially curing said first insulation film by applying
a first thermal energy corresponding to ~~[[at]]~~ a temperature of 380 - 500°C over a duration of
5 - 180 seconds;
forming a second insulation film directly on said first insulation film by a spin-on
process; and
~~applying a second completely curing process to~~ said first insulation film and said
second insulation film by applying a second thermal energy larger than said first thermal
energy.
2. (Previously presented) The method as claimed in claim 1, wherein said first insulation
film comprises an organic material having a specific dielectric constant of 3.0 or less.
3. (Previously presented) The method as claimed in claim 1, wherein said first insulation
film comprises an organic material of aromatic group.
4. (Previously presented) The method as claimed in claim 1, wherein said first insulation
film is formed of a spin-on film selected from the group consisting of an SiNCH film, an
SiOCH film, an organic SOG film, and an HSQ film.
5. (Previously presented) The method as claimed in claim 1, wherein said second
insulation film comprises an organic material having a specific dielectric constant of 3.0 or
less.
6. (Previously presented) The method as claimed in claim 1, wherein said second
insulation film comprises an organic material of aromatic group.
7. (Previously presented) The method as claimed in claim 1, wherein said second
insulation film is formed of a spin-on film selected from the group consisting of an SiNCH
film, an SiOCH film, an organic SOG film, and an HSQ film.

MAEKAWA et al. -- Appln. No. 10/069,274
Attorney Docket: 040258-0290685

8. (Currently amended) The method as claimed in claim 1, wherein said partial curing process is conducted at a temperature between 380 – 500°C over a duration of 10 – 150 seconds.
9. (Currently amended) The method as claimed in claim 1, wherein partial said curing process is conducted at a temperature between 400 - 470°C over a duration of 10 – 150 seconds.
10. (Canceled)
11. (Currently amended) A method of fabricating a semiconductor device, comprising:
forming a first insulation film on a substrate by a spin-on process;
~~applying a first partially curing process to said first insulation film by applying a first~~
thermal energy corresponding to [[at]] a temperature of 380 - 500°C over a duration of 5 –
180 seconds;
forming a second insulation film directly on said first insulation film by a spin-on process;
~~applying a second completely curing process to said first insulation film and said~~
second insulation film by applying a second thermal energy larger than said first thermal
energy;
patterning said second insulation film to form an opening therein; and
etching said first insulation film while using said second insulation film as a mask.
12. (Previously presented) The method as claimed in claim 11, wherein said first insulation film comprises an organic material having a specific dielectric constant of 3.0 or less.
13. (Previously presented) The method as claimed in claim 11, wherein said first insulation film comprises an organic material of aromatic group.

MAEKAWA et al. -- Appln. No. 10/069,274
Attorney Docket: 040258-0290685

14. (Previously presented) The method as claimed in claim 11, wherein said first insulation film is formed of a spin-on film selected from the group consisting of an SiNCH film, an SiOCH film, an organic SOG film, and an HSQ film.
15. (Previously presented) The method as claimed in claim 11, wherein said second insulation film comprises an organic material having a specific dielectric constant of 3.0 or less.
16. (Previously presented) The method as claimed in claim 11, wherein said second insulation film comprises an organic material of aromatic group.
17. (Previously presented) The method as claimed in claim 11, wherein said second insulation film is formed of a spin-on film selected from the group consisting of an SiNCH film, an SiOCH film, an organic SOG film, and an HSQ film.
18. (Currently amended) The method as claimed in claim 11, wherein said partial curing process is conducted at a temperature between 380 – 500°C over a duration of 10 – 150 seconds.
19. (Currently amended) The method as claimed in claim 11, wherein said partial curing process is conducted at a temperature between 400 - 470°C over a duration of 10 – 150 seconds.
20. (Canceled)
21. (Currently amended) A method of fabricating a semiconductor device having a layered structure including plurality of insulation layers, comprising:
applying a first ~~partially~~ curing process to a first insulation layer forming one of said plurality of insulation layers by applying a first thermal energy corresponding to a temperature of 380-500°C over a duration of a 5-180 seconds;

MAEKAWA et al. — Appln. No. 10/069,274
Attorney Docket: 040258-0290685

forming one or more insulation layers constituting said plurality of insulation layers on said first insulation layer to form said layered structure such that at least said first insulation layer and a next insulation layer make direct contact with each other; and ~~applying a second completely curing process to~~ said layered structure by applying a second thermal energy larger than said first thermal energy.

22. (Previously presented) The method as claimed in claim 21, wherein said layered structure includes insulation films that comprise organic material having a specific dielectric constant of 3.0 or less.

23. (Previously presented) The method as claimed in claim 21, wherein said insulation films comprise organic material of aromatic group.

24. (Previously presented) The method as claimed in claim 21, wherein said insulation films are formed of a spin-on film selected from the group consisting of an SiNCH film, an SiOCH film, an organic SOG film, and an HSQ film.

25. (Currently amended) The method as claimed in claim 21, wherein said partial curing process is conducted at a temperature between 380 - 500°C over a duration of 10 - 150 seconds.

26. (Currently amended) The method as claimed in claim 21, wherein said partial curing process is conducted at a temperature between 400 - 470°C over a duration of 10 - 150 seconds.

27. (Currently amended) The method as claimed in claim 21, wherein said complete ~~second~~ curing process is conducted such that there is formed an intermixing layer between said insulation films forming said layered structure.

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.